

Abstract.

A spatial light modulator imaging system comprises an electrically addressed spatial light modulator (EASLM 4, 30) whose optical image output is projected onto different areas of an optically addressed spatial light modulator (OASLM, 6, 8, 31) in a sequence. The OASLM carries electrodes which allow separate areas to be selectively addressed by application of a voltage whilst receiving light from the EASLM. The combined output from all areas of the OASLM forms a visible image to an observer (11). When illuminated by coherent light the OASLM may produce a holographic image, otherwise incoherent light is used to provide a two dimensional image. The OASLM in one example contains a layer of nematic liquid crystal material between two cell walls both treated with an alignment layer providing low tilt surface alignment that is parallel in opposite direction; the product of layer thickness d and material birefringence Δn approximately equals one quarter of the wavelength λ of read light (12, 37). Other types of nematic devices may also be used, with cell parameters arranged to give enhanced diffraction efficiency.

Figure 1 for the Abstract.